

Some new or uncommon Syrphini (Diptera: Syrphidae) from Southern Africa

by

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SYNOPSIS

Keys to the Ethiopian species of *Episyrphus* and of *Sphaerophoria* are given. *Episyrphus nigromarginatus* n. sp. (Transvaal), *E. petilis* n. sp. (Portuguese East Africa, Rhodesia, Natal, Cape Province) and *Pelloloma nigrifacies* n. gen., n. sp. (Cape Province) are described. *Syrphus stuckenbergi* v. Doesburg (1957) is synonymized with *Episyrphus circularis* (Hull) (1941). The male terminalia of *Sphaerophoria quadritubercalata* Bezzi and of *S. retrocurva* Hull are described and illustrated.

This paper is based primarily on specimens from the Natal Museum, Pietermaritzburg, kindly loaned to me by Dr B. R. Stuckenberg. A few specimens from other collections were also studied. I wish to thank the following for loan of specimens or for permission to examine types in their care: the late Dr F. Keiser, and Dr C. Baroni Urbani, Naturhistorisches Museum, Basel; Prof. E. Lindner, Staatliches Museum für Naturkunde Stuttgart; Mr P. I. Persson, Naturhistoriska Riksmuseet, Stockholm; Dr S. S. Roback, Academy of Natural Sciences, Philadelphia; Mr K. G. V. Smith, British Museum (Natural History), London; the late Mr P. H. van Doesburg, Baarn, Netherlands.

Pelloloma n. gen.

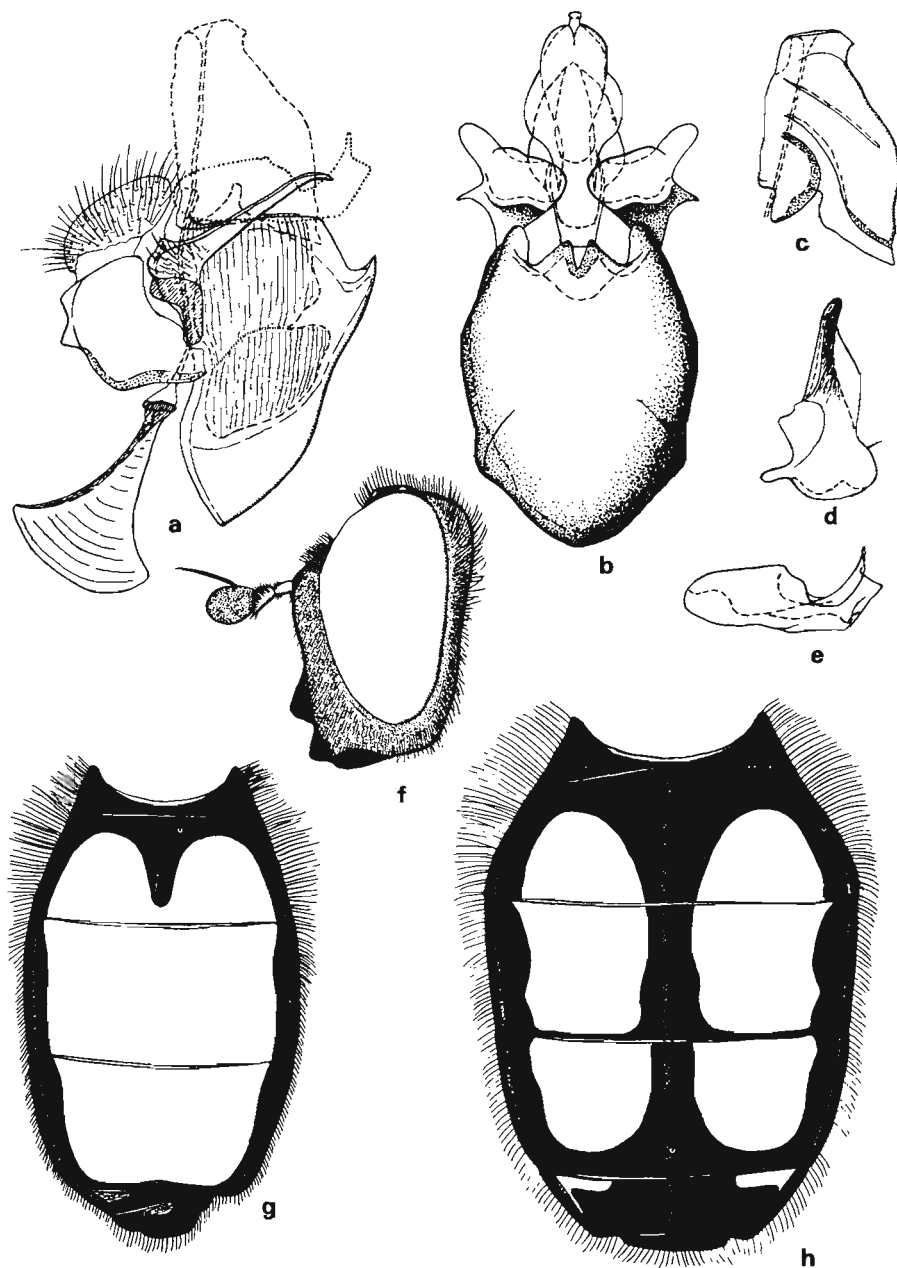
Derivation of name: $\pi\epsilon\lambda\lambda\omicron\varsigma$ = dark-coloured; $\lambda\omega\mu\alpha$ = margin.

Gender: neuter.

Type-species: *P. nigrifacies* n. sp., by present designation.

Medium-sized robust species with head and thorax entirely black and tergites mostly yellow-orange with narrow black lateral margin and, in female, a black median stripe. Length 8,5 to 10,0 mm.

Eye bare. Eyes of male touching for a distance about $\frac{2}{3}$ as long as frontal triangle. Vertical triangle large; area immediately surrounding ocellar triangle slightly swollen. Front of female broad, at narrowest point 0,27 times maximum width of head. Ocellar triangle large, well before posterior angle of eye, ocelli separated from one another by three to four times their diameter. Postcranium moderately swollen. Face (fig. 1f) vertical, entirely black, densely silvery-grey pollinose except for shining tubercle, stripe below tubercle to oral margin, and anteroventral angle of cheek. Face very slightly broadened below, at broadest point $\frac{1}{2}$ maximum head width. Tubercle well developed but not broad, oblique above, abrupt below. Oral opening about 1,8 times as long as broad. First antennal segment 1,1 times as long as broad. Arista bare. Mesonotum and scutellum black, mostly shining. Subscutellar fringe entire, short, dense, in several rows. Pleura black, moderately pollinose. Dorsal and ventral sternopleural hair patches broadly separated, the latter of only a few



1. *Pelloloma nigrifacies*

Fig. 1. *Pelloloma nigrifacies* n. gen., n. sp., holotype ♂, paratype ♀. a, male terminalia, left lateral (superior lobe and aedeagus in outline only); b, sternite 9, superior lobes and aedeagus, ventral; c, aedeagus, left lateral; d, left surstylus, posterior; e, left superior lobe, lateral; f, male head; g, male abdomen, dorsal; h female abdomen, dorsal.

hairs. Metasternum bare. Hind coxa with posteromedan apical tuft of hairs. Wing shape and venation normal; wing with rather extensive bare areas on basal $\frac{3}{4}$. Femora rather stout, especially the posterior pair. Abdomen (fig. 1g, h) broadly oval, nearly flat, with moderately broad distinct margin from near apex of tergite 2 to apex of tergite 5. Tergites shining, mostly yellow-orange, with black markings as figured. Tergite 5 and sternite 5 of male extremely short. Sternites mostly yellow orange.

Male terminalia (fig. 1a-e). Tergite 9 reduced, short; cercal notch very broad and shallow. Surstylus attached along most of posteroventral margin of tergite 9, broad basally, then strongly narrowed and continued posteroventrad as a long slender process which tapers to a slightly curved apex, with a few short hairs near base. Sternite 9 very long, posterior end deep, posterior margin nearly straight, posteroventral emargination very shallow and with a short deeply-divided lingula. Superior lobe articulated just below posterodorsal angle of sternite 9, short but extending ventrad to lower margin of sternite, the dorsal portion compressed, the ventral portion broadened and rather strongly depressed, the lateral margin extended into a triangular and narrower bluntly-rounded process, the median margin broadly rounded and with a single marginal hair, the apex curved slightly caudad. Aedeagus one-segmented, rather strongly sclerotized throughout, in lateral view subtriangular with apex subtruncate, broad anterodorsally, mostly moderately compressed and with extreme apex strongly compressed, with a strong emargination in anterior margin, and with a pair of thin diagonal lateral flanges beginning on median third of dorsal surface and extending anteroventrad. Aedeagal apodome very large, occupying most of cavity of sternite 9, the anterior half a single strongly compressed plate, the posterior half hollow, of two divergent plates joined anteriorly and dorsally but broadly separated posteriorly and ventrally. Ejaculatory apodeme large, elongate-triangular, strongly compressed except at narrow posterior end where it is abruptly broadened and transverse, the transverse portion ending on each side in a heavily sclerotized knob.

Distribution. Cape Province, South Africa.

Discussion. The genus *Pelloloma* is here referred to the Syrphini although it is possible that it should be included in the tribe Melanostomini. The entirely black face and scutellum are characters found consistently in the Melanostomi. They occur in no other Syrphini known to me although *Melangyna* (*Melanosyrphus*) *dichoptica* Vockeroth, 1969, from New Guinea, has the face at most obscurely reddish laterally and the scutellum entirely black. A one-segmented aedeagus is also characteristic of the Melanostomini and is found in only two other species of Syrphini. However, the aedeagus of *Pelloloma* is far more elaborate than and very different from the more or less tubular aedeagus of the Melanostomini (cf. the many figures given by Fluke (1957) and by Dušek & Láška (1967)). I had thought it possible that the very large hollowed posterior portion of the aedeagal apodeme of *Pelloloma nigrifacies* might represent the basal portion of the aedeagus, but the ejaculatory duct enters the aedeagus distad of the distal end of this structure (fig. 1a) and the one-segmented structure shown in fig. 1c undoubtedly represents the entire aedeagus. However, no species of the tribe Melanostomini known to me has even a trace of an impressed margin on the abdominal tergites. The presence of a strong margin on the tergites of *Pelloloma* plus the elaborate structure of the aedeagus indicate that its inclusion in the Syrphini is probably correct.

I do not know to which other genus of the tribe Syrphini the genus *Pelloloma* is most likely to be related. The two other species with a one-segmented aedeagus, *Simosyrphus grandicornis* (Macq.) and *Dideomima coquilleti* (Will.), both have the aedeagus and other parts of the terminalia so different from those of *Pelloloma* that a close relationship is unlikely.

In the key to world genera of Syrphini given by Vockeroth (1969: 38) the genus *Pelloloma* runs to couplet 37; it has the abdomen margined as do *Syrphus* and *Epistrophe*, the two genera which run to the first half of this couplet, but the species of these genera have the face mostly or entirely yellow instead of entirely black, and neither genus is known to occur in the Ethiopian Region. In the key to genera of the Ethiopian Region (p. 48) it runs to couplet 7; again it agrees with neither alternative as it has the eye bare and the hind coxa with a tuft of hairs at the posteromedian apical angle. In the key based on male terminalia (p. 50) it runs to couplet 27 but differs from the other genera which run there in having the aedeagus one-segmented rather than divided into distinct basal and distal portions.

***Pelloloma nigrifacies* n. sp.**

Male. Length 8,5 mm. Head (fig. 1f) black with only narrow anterior margin of front dark orange; silvery-grey pollinose with vertical triangle, small semicircular area above antennae, facial tubercle and a median stripe below it, and anteroventral angles of cheeks shining. Hair of vertical triangle brown, that of front and upper part of posteranium golden, rest of head hairs nearly white. Antenna with first two segments orange-brown, third segment and arista black. Mesonotum and scutellum shining black with short dense erect golden hair, the former with narrow anterior margin lightly grey pollinose, the latter with anterior declivity densely grey pollinose. Pleural hairs golden above, pale yellow below. Wing clear; stigma pale brown. Wing membrane with bare areas as follows: first costal cell; base of second costal cell to middle of cell anteriorly and to end of basal $\frac{1}{4}$ posteriorly; most of first radial cell (cell basad of basal cells); cell R_1 to level of fork of R_s ; first basal cell except most of apical $\frac{2}{3}$ behind spurious vein; narrow posterior strip on basal $\frac{1}{3}$ of cell R_{2+3} ; small area at base of cell R_{4+5} ; second basal cell except apex and median strip before apex; broad anterior margin of anal cell; very narrow strip in front of axillary vein extending almost to its apex, and a slightly shorter strip behind axillary vein. Squamae white with yellow margin and white fringe. Haltere yellow-orange. Legs almost entirely shining to sub-shining black and bright orange as follows: coxae and trochanters black; fore leg with basal $\frac{1}{4}$ of femur and last four tarsal segments black, second tarsal segment brownish; otherwise orange; hind leg mostly black, extreme apex of femur and basal $1\frac{1}{4}$ of tibia orange, ventral surface of tarsus orange-brown. Hairs of legs yellow.

Abdomen (fig. 1g) black and bright yellow-orange, shining. Tergite 1 black; tergite 2 with lateral margin, anterior margin and tapering truncate incomplete median stripe black; tergite 3 with lateral margin black, tergite 4 with lateral margin and very narrow posterior margin black; tergite 5 black except for minute anterior yellow-orange area on left side. Sternite 1 blackish, pollinose; sternites 2 to 4 yellow-orange, subshining; sternites 5 to 8 densely pollinose, black except for an obscure anterior yellow-orange area on sternite 8. Hairs of abdomen short, rather dense, mostly erect, entirely pale yellow to white.

Female. Length 10,0 mm. Similar to male, differing as follows: Front black, shining except for a narrow lateral silvery-pollinose area on lower half which is abruptly broadened

just above level of antennal base and confluent below with pollen of face. Front with band of black hairs across ocellar triangle. Bare areas of wing more extensive, extending farther distad in all cells. Fore and mid trochanters orange-brown; fore tarsus with second segment orange-brown; mid tarsus with second segment orange. Abdomen (fig. 1h) more extensively black; tergites 2 to 4 with continuous black median stripe which is broadened at posterior margin of each tergite to form a very narrow transverse black band; tergite 5 with a pair of short obscure basal yellow-orange spots.

Types. Holotype ♂, 2 paratype ♀, SOUTH AFRICA, Naude's Nek (eastern slopes), Barkly East. Dist., East Cape Province, 2 350–2 525 m, 19.i.1963 (B. & P. Stuckenberg); in Natal Museum (No 1586), one ♀ in Can. Nat. Coll.

Genus *Episyrphus* Matsumura & Adachi

The type-species is not *Musca balteata* De Geer, 1776, as stated by Matsumura & Adachi (1917b: 16) and subsequent authors. It is *Episyrphus fallaciosus* Matsumura, 1917 by monotypy (Matsumura & Adachi 1917a: pl. VI, fig. 13). Both Matsumura & Shiraki (1930: p. 362, as *fallacius*, error) describe *fallaciosus* as being very similar to *balteatus*, and the figure cited above supports this. However, Shiraki, who based his description on a syntype, said it differs from *balteatus* in having haired eyes. I have seen no species of *Episyrphus* with this character; the types of *fallaciosus* should be re-examined to determine if the species is in fact congeneric with *balteatus*.

The Ethiopian Region species treated below all agree with the generic description given by Vockeroth (1969) except that *Episyrphus petilis* n. sp. has the alula rather narrow with a slightly concave posterior margin, and the surstyli and superior lobes (figs 2–4, 6b, c) are more varied in shape than that description indicates. *E. nigromarginatus* n. sp. has the wing almost entirely trichose; the other four regional species, as well as *balteatus*, have the microtrichia very nearly as in *petilis*.

Key to species of *Episyrphus* of the Ethiopian Region

1. Tergites 3 and 4 each with basal and apical or subapical black band (fig. 6); hind femur black with narrow base and apex yellow; Madagascar, Mauritius. **circularis** (Hull)
Tergites 3 and 4 with the anterior black band, if present, subbasal; hind femur entirely yellow or yellow with brownish area near mid length. 2
2. Face entirely yellow; wing extensively bare on basal third, the second basal cell at least half bare; tergites 3 and 4 almost entirely yellow laterally. 3
Facial tubercle black; wing almost entirely trichose, the second basal cell with a very small bare area near base; tergites 3 and 4 almost entirely black laterally (fig. 3); Transvaal. **nigromarginatus** n. sp.
3. Abdomen very slender, parallel-sided, tergite 3 about 0,8 times as broad as long (fig. 4); alula slightly narrowed, concave posteriorly; southern Africa. **petilis** n. sp.
Abdomen broader, elongate oval, tergite 3 at least 1,5 times as broad as long; alula broad, convex posteriorly. 4
4. Front shining black anteriorly; pleura black with mesopleuron and sternopleuron partly yellow pollinose; tergite 1 black on median $\frac{2}{3}$ or more (fig. 2); widespread. **trisectus** (Loew).

Front broadly yellow anteriorly; pleura with upper half or more yellowish and yellow pollinose; tergite 1 entirely yellow (fig. 5); Madagascar. **flavibasis** (Keiser).

Episyrphus trisectus (Loew)

Syrphus trisectus Loew, 1858, *Öfvers. VetenskAkad. Forh.* (1857) 14:379; 1860, *Dipt.-Fauna Südafrikas* 1:307; Bezzi, 1915, *Syrph. Ethiop. Reg.*, p. 34; Curran, 1939, *Am. Mus. Novit.* 1010:11.
Episyrphus trisectus Loew, Vockeroth, 1969, *Mem. ent. Soc. Can.* 62:125.

This species is very similar to the common Palearctic *Episyrphus balteatus* (DeG.). The male terminalia of *trisectus* (fig. 2b,c) do not differ from those of *balteatus*. The two species may be distinguished as follows:

trisectus: front shining black anteriorly; tergites (fig. 2a) with black markings smaller: anterior black mark of tergite 2 widely separated from posterior black band or in female sometimes absent, subbasal black band of tergites 3 and 4 present or absent; sternite 2 and sometimes sternite 3 of male with subapical black or brown band.

balteatus: front yellow anteriorly; tergites with black markings larger: anterior black mark of tergite 2 always present and at least narrowly joined to posterior black band, subbasal black band of tergites 3 and 4 present; sternites 2 to 4 of male with median longitudinal black or brown marks.

Specimens examined: 1 ♀, Caffraria (accepted by me as holotype; Naturhistoriska Riksmuseum, Stockholm); 12 ♂♂, 19 ♀♀ from Kenya, Uganda, Tanzania, Rhodesia, Natal Can. Nat. Coll.; Staatl. Mus. Naturk., Stuttgart).

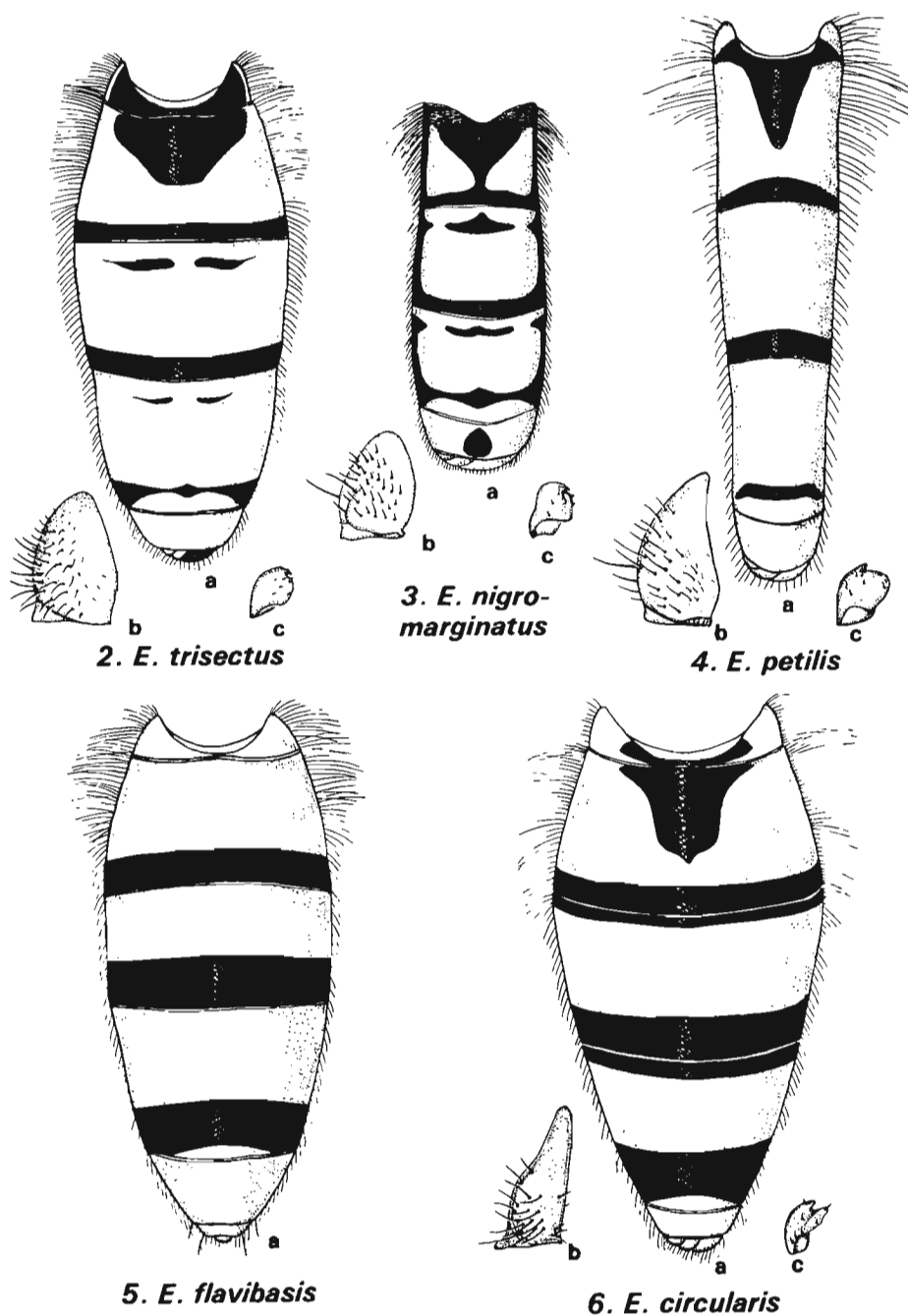
Episyrphus nigromarginatus n. sp.

Rather small, moderately slender species, the tergites mostly yellow with subbasal and apical or subapical black bands and narrow black lateral margin. Length 7,4 mm.

Male. Face slightly narrowed below, at widest point 0,37 times maximum width of head. Front and face densely olive-yellow pollinose so yellow ground colour is obscured; cheek yellow; facial tubercle and semicircular area above antennae brownish-black, only slightly pollinose.

Postcranium black, lightly grey pollinose above, densely greyish-yellow pollinose below. Hairs of vertical triangle dark, extremely short (apparently abraded); hairs of front moderately long, black; other head hairs yellow to white. Antenna yellow, upper $\frac{1}{3}$ and apex of third segment and apical half of arista dark brown, third segment 1,3 times as long as broad.

Mesonotum black, densely yellow-brown pollinose, on each side with an obscure narrow presutural submedian stripe and a broader sublateral stripe extending almost to scutellum, the stripes due to sparser pollen. Mesonotal hairs yellow. Scutellum dull yellow, scutellar hairs mostly black on median third, otherwise mostly yellow. Subscutellar fringe yellow, moderately long, rather dense medially but sparse laterally, in one to two rows. Pleura black, densely yellow-brown pollinose, the hairs yellow. Anterior mesopleuron with erect hairs posterodorsally and on lower half. Sternopleuron without anterior hairs; upper and lower sternopleural hair patches broadly separated. Metasternum with about 12 long hairs. Wing very slightly greyish; stigma pale brown. Alula broad, its posterior margin convex. Wing membrane almost entirely trichose, with bare areas as follows: a narrow cen-



Figs 2-6. Abdomen, surstylus and superior lobe: 2, *Episyrphus trisectus* (Loew), ♂, Kenya; 3, *E. nigromarginatus* n. sp., holotype ♂ (tergite 1 omitted); 4, *E. petilis* n. sp., holotype ♂; 5, *E. flavibasis* (Keiser), paratype ♀; 6, *E. circularis* (Hull), ♂, Mauritius. a, abdomen, dorsal; b, left surstylus, lateral; c, left superior lobe, posterolateral.

tral strip on-apical half of first costal cell, a very small and obscure anterior area just beyond base of each of basal cells and of anal cell, and a narrow strip in front of basal third of axillary vein. Squamae, squamal fringe and haltere dull yellow. Legs dull yellow; hind femur and tibia narrowly and obscurely brownish medially, hind tarsi brown towards apex. Leg hairs mostly yellow; anterior and dorsal hairs of apical half of hind femur and of hind tibia, and dorsal hairs of hind tarsus, mostly brown to black. Fore and mid femora at about $\frac{1}{3}$ their length, and hind femur at about $\frac{3}{8}$ its length, with a slight but sudden upward bend, the femora at the bend with an apparent weakened area; hind tibia at mid length with a similar downward bend (these bends and weakened areas are probably developmental aberrations).

Abdomen (fig. 3a) rather short, nearly parallel-sided. Tergites dull yellow with blackish-brown markings as follows: all of tergite 1 except lateral angles (tergite apparently slightly deformed); large basal triangle, narrow posterior band and very narrow entire lateral margins of tergite 2, the basal triangle produced caudad to meet the apical band; isolated subtriangular subbasal band, narrow posterior margin and very narrow entire lateral margin of tergite 3, the dark margin produced triangularly mediad opposite the subbasal band; a very narrow isolated subbasal band, a narrow preapical band which is elongated medially and laterally, and very narrow lateral margin of tergite 4; the dark margin produced triangularly mediad opposite the subbasal band and ending slightly before the anterior margin of the tergite; an oval median spot on tergite 5. Sternites 1 to 7 yellow, sternite 8 black. Sternites, tergite 1, all but apex of tergite 2, and large lateral triangles on tergite 3 yellow-haired; rest of tergites black-haired. Longest hairs of tergite 2 only $\frac{1}{3}$ as long as width of tergite. Terminalia (fig. 3b, c): Surstylus broad with broadest surface directed laterad, slightly and evenly tapering to broadly rounded apex. Sternite 9 with postero-ventral emargination about 0,95 times as long as sternite. Superior lobe with apical tooth pale, situated near posteroventral angle of lobe.

Holotype ♂, SOUTH AFRICA, Roodeplaat, N. Transvaal, 21.vii.1967 (N. J. v Rensburg); in Natal Museum (No. 1587).

***Episyrphus petilis* n. sp.**

Very slender species with abdomen almost parallel-sided, the tergites mostly yellow and usually with narrow apical or subapical black bands. Length 8,1 to 10,4 mm.

Male. Face parallel-sided, narrow, at widest point 0,32 times maximum head width. Face, front and cheek pale yellow, whitish pollinose except for subshining subquadrate supra-antennal area about half as long as front, and subshining facial tubercle. Postcranium blackish above, paler below, with silvery pollen. Head hairs yellow to white. Antenna yellow, arista and upper $\frac{1}{3}$ of third segment dark brown, third segment 1,3 times as long as broad.

Mesonotum brown, unstriped, lightly yellow-brown pollinose; humerus and broad notopleural area yellowish, densely yellow pollinose; postcallus yellow-brown, moderately yellow pollinose. Mesonotal hairs yellow. Scutellum pale yellow, lightly yellow pollinose. Scutellar hairs long, mostly dark brown to black. Subscutellar fringe long, yellow, rather sparse, in two irregular rows. Metanotum dark brown. Pleura yellow brown, with fine white or yellow pollen; sternopleuron, except semicircular area above upper hair patch, light

brown. Pleural hairs pale yellow. Anterior mesopleuron with erect hairs posterodorsally and on lower half. Anterior end of sternopleuron with two fine hairs; upper and lower sternopleural hair patches joined posteriorly by a single row of hairs. Metasternum with six long pale hairs. Wing pale yellow-brown, very slightly darker towards apex; stigma pale brown. Alula very slightly narrowed; its posterior margin slightly concave. Wing membrane with the following area bare: first costal cell except very narrow margins, anterior $\frac{2}{3}$ of basal $\frac{1}{3}$ of second costal cell, first radial cell (cell basad of basal cells) except extreme base and posteroapical angle, most of basal half of first basal cell in front of spurious vein and small area at base of cell behind spurious vein, basal $\frac{1}{3}$ of second basal cell except narrow anterior margin beyond mid length of cell and narrow posterior margin beyond $\frac{1}{3}$ length of cell, anterior margin of about basal half of anal cell, an elongate narrow area in front of auxillary vein and a shorter narrow area behind auxillary vein. Squama pale yellow, the margin of the upper one brownish; fringe yellow. Haltere with yellow stalk and brown knob. Legs mostly yellowish-white to yellow-brown, the fore and mid coxae, tibiae and tarsi very pale, the hind femur and tibia darker, last four segments of hind tarsus brown. Hairs of legs mostly pale yellow; those of posterior surface of mid femur, and of hind leg, yellow-brown to brown.

Abdomen (fig. 4a) slender, elongate, nearly parallel-sided. Tergites mostly dull yellow, 1 to 3 subshining, 4 and 5 more pollinose, with black markings as follows: median $\frac{2}{3}$ of tergite 1; basal triangle and narrow apical band on tergite 2, the triangle basally about $\frac{1}{3}$ as wide as tergite, the band very slightly narrowed laterally; apical band on tergite 3, the band not narrowed laterally; a narrow preapical band on tergite 4, the band apparently not reaching margins of tergite. Tergite 5 apparently slightly darkened apically. Sternites yellow, 4 and 5 discoloured but apparently without distinct markings. Postabdominal sclerites mostly yellow; sternite 8 dark brown, shining. Hairs of segment 1 and those near base of segment 2 yellow, other abdominal hairs brown. Hairs of tergite 1 and lateral hairs of tergite 2 very long, the longest hairs of tergite 2 more than $\frac{3}{4}$ as long as width of tergite. Terminalia (fig. 4b,c): Surstylus broad, with broadest surface directed laterad, tapering on gentle curved posterodorsal margin to a subacute apex. Sternite 9 with posteroventral emargination about 0,6 times as long as sternite, the ventromedian margin of apicolateral process not turned outward as a thin flange. Superior lobe with apical tooth dark, situated at posterodorsal angle of lobe.

Female. Very similar to male, differing as follows: Front black except for yellow subquadrate area above antenna, upper half finely blue-grey pollinose with or without an indistinct shining median stripe, the pollen continuing ventrad along eye margins on to face. Width of front at narrowest point (at level of anterior ocellus) 0,10 times maximum width of head. Disc of mesonotum dark brown to black, sometimes with very faint submedian presutural stripes of greyish pollen. Hairs of mesonotum and scutellum slightly shorter. Pleura varying in colour from entirely pale yellow to yellow-brown with about lower $\frac{1}{3}$ dark brown. Sternopleuron with two or three anterior hairs; row of hairs joining hair patches sometimes incomplete. Fore femur and mid tarsus with dorsal hairs mostly brown. Tergites pale yellow to reddish-yellow; basal black triangle of tergite 2 sometimes extending caudad to apical band; dark bands of tergites 3 and 4 sometimes very indistinct or apparently absent. Hairs of tergite 1 and lateral hairs of tergite 2 slightly shorter.

Types: Holotype ♂, MOÇAMBIQUE, Tumbine Mountain, Milange, vii.1957 (B. & P. Stuckenberg); in Natal Museum (No. 1585). Paratypes: 1♀, same data as holotype; 1♀, Goronzoga Mountain, Manica-Sofala Dist., Moçambique, 1 200 m, ix.1957, in mountain forest (B. Stuckenberg); 1 ♀, N. Vumba, Rhodesia, 27.iii.1965 (D. Cookson); 2 ♀, Laurenceville, Vumba, Rhodesia, 1 and 27.iii.1963 (D. M. Cookson); 1 ♀, Karkloof, Natal, 17.iv.1955 (B. Stuckenberg); 1 ♀, Hogsback, north of Alice, E. Cape Province, (B. & P. Stuckenberg); in Natal Mus., Can. Nat. Coll.

Episyrphus flavibasis (Keiser), **n. comb.**

Syrphus flavibasis Keiser, 1971, *Verh. naturf. Ges. Basel* 81:225.

The abdomen is shown in fig. 5.

Specimens examined: 4 ♀♀ (holotype, paratypes), Joffreville, Madagascar (Naturh. Mus., Basel).

Episyrphus circularis (Hull)

Asarkina circularis Hull, 1941, *Proc. Acad. nat. Sci. Philad.* (1940) 92:319.

Episyrphus circularis Hull, Vockeroth, 1969, *Mem. ent. Soc. Can.* 62:165.

Syrphus stuckenbergi van Doesburg, 1957, *Naturaliste malgache* 9:105. **N. syn.**

The male abdomen, surstylus and superior lobe are shown in fig. 6a–c. Sternite 9 has the posteroventral emargination about 0.65 times as long as the sternite, distinctly narrowed at mid length and then broadened anteriorly.

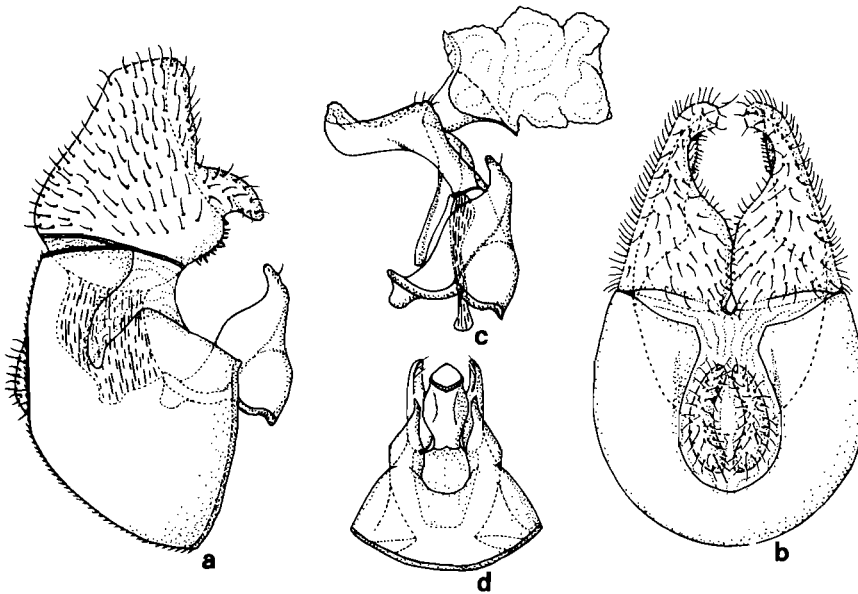
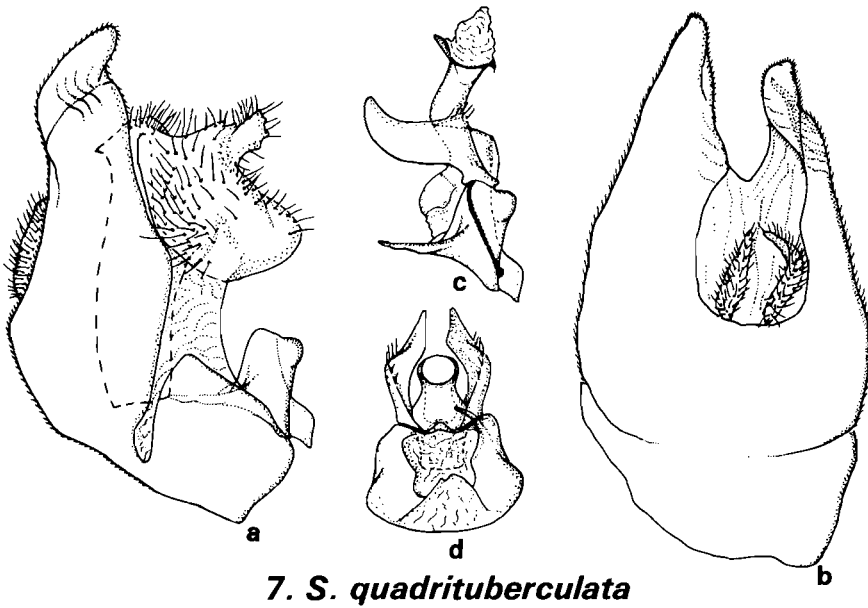
Specimens examined: 1 ♀ (holotype), 1 ♀ (paratype), Oriental Forest, Fanovana between Tamatave and Tananarive, Madagascar (Acad. Nat. Sci., Philadelphia); 1 ♂ (paratype of *stuckenbergi*), Station Forestière de Manjakatampo, Ankaratra, Madagascar (coll. P. H. van Doesburg); 1 ♂, Macabe Forest, Mauritius; 1 ♀, Pouce Mt., Mauritius, 610 m (Can. Natl Coll.).

Genus *Sphaerophoria* Lepelletier and Serville

In a previous paper (Vockeroth 1969) I expressed doubt that any species of *Sphaerophoria* other than *S. rueppellii* (Wiedemann) occurred in the Ethiopian Region. Dr Stuckenberg has sent me specimens of *S. quadrimaculata* Bezzi and *S. retrocurva* Hull from South Africa. Both can reasonably be referred to *Sphaerophoria* even though the male terminalia of the two species differ markedly from one another and from those of other species of the genus. Both species have the abdomen unusually long and slender, the lateral yellow mesonotal stripe ending at the suture, the propleuron above the fore coxa and the pteropleuron without distinct yellow markings, the metasternum haired, the subscutellar fringe absent and the cercal notch of the male open. Because of the lack of yellow propleural and pteropleural markings neither species will run definitely to *Sphaerophoria* in the keys to World and Ethiopian genera given by Vockeroth (1969: 38, 48). Couplets 49 and 5 respectively of these keys should be emended to read:

Male terminalia small, tergite 9 less than half as wide as abdomen; ♀, tergite 5 with distinct yellow markings which do not reach the tergite margins. **Exallandra**

Male terminalia large and globose, tergite 9 as wide as abdomen; ♀, tergite 5 either without distinct yellow markings or with distinct yellow markings which reach the tergite margins **Sphaerophoria**



Figs 7, 8. Male terminalia: 7, *Sphaerophoria quadrituberculata* Bezzi, Cape Province; 8, *S. retrocurva* Hull, Natal. a, tergite 9, sternite 9 and surstylus, lateral; b, tergite 9 and cerci, dorsal; c, sternite 9, superior lobe and aedeagus, lateral; d, sternite 9, superior lobes and aedeagal base, ventral.

The single species of *Exallandra* can also be separated from *S. quadrituberculata* and *S. retrocurva* by the presence of a well-developed subscutellar fringe on all but about the median $\frac{1}{3}$ of the scutellum.

Key to Ethiopian Species of *Sphaerophoria*

1. Sternopleuron unicolorous, greyish to black; tergites 3 and 4 without entire transverse yellow bands; cercal notch of male open (South Africa).....2
 Sternopleuron black with large rounded yellow spot dorsally; tergites 3 and 4 each with broad entire arcuate yellow band; cercal notch of male closed (Kenya, Ethiopia, Palaearctic) **rueppellii** (Wied.)
2. Tergites black, reddish laterally, without distinct yellow markings; second costal cell and second basal cell with at least a few microtrichia near apex; male with a pair of strong tubercles on each of tergites 3 and 4.....**quadrituberculata** Bezzi (δ only; ϕ unknown) Tergites black, 2 to 4 each with a pair of oblique sublateral yellow spots at about mid length of tergite; second costal cell and second basal cell entirely bare; tergites without tubercles.....**retrocurva** Hull

Sphaerophoria rueppellii (Wiedemann)

Syrphus rueppellii Wiedemann, 1830, *Aussereur. zweifl. Ins.* 2:141.

The many references to this species, and its extensive synonymy, are not given here. The species, including the male terminalia, was figured by Bankowska (1964: figs 37–46). Bhatia (1939) has recorded the larvae (as *S. flavicauda* (Zetterstedt)) as feeding on aphids.

Specimens examined: 14 $\delta\delta$, 1 ϕ , several localities in Ethiopia; 1 δ , Kinotton Forest Station, nr. Kitale, Mt Elgon, Kenya, 2 490 m; many $\delta\delta$, $\phi\phi$ from Egypt, Israel and western Europe (Can. Natl Coll.).

Sphaerophoria quadrituberculata Bezzi

Sphaerophoria quadrituberculata Bezzi, 1915, *Syrph. Ethiop. Reg.*, p. 35; Stuckenberg, 1954, *J. ent. Soc. sth. Afr.* 17:58.

Bezzi (1915: fig. 6) has figured the male abdomen.

Male terminalia (fig. 7): Tergite 9 with cercal notch open, slightly asymmetrical, produced posteroventrad far beyond posterior margin of surstyli as two tapering processes, the left process twisted and wrinkled apically (possibly deformed). Cerci slightly asymmetrical. Surstylus broadly articulated to lower margin of tergite 9, subquadrangular in outline, the anteroventral angle broadly rounded, the posteroventral angle produced ventrad, more heavily sclerotized, and with its margin irregularly toothed; outer surface with sparse short hairs, inner surface with more abundant and longer hairs; surstyler apodeme very large, its anterior portion joined to surstylus by thick membrane. Sternite 9 small, on each side with slender anterodorsal process articulating with surstyler apodeme, in ventral view slightly asymmetrical, with a slender curved process projecting caudad from the posteroventral angle on right side only, the posteroventral emargination filled with thick membrane. Superior lobe compressed, directed caudad and then curved strongly dorsad, with a few weak hairs at posteroventral angle, the apex without a membranous appendage. Aedeagal base V-shaped in lateral view, the anterior portion subcylindrical and projecting forward

above sternite 9, the middle portion considerably broadened below, the posterodorsal portion subcylindrical. Distal portion of aedeagus with basal half and most of dorsal surface sclerotized, the basal half slightly compressed, the apical portion greatly broadened and very weakly sclerotized.

Stuckenberg (1954) has recorded the larvae as feeding on *Cercothrips afer* Priesner (Thysanoptera).

Specimens examined: 1 ♂, 1 ♀ (syntypes), Durban, Natal (B.M. (N.H.)); 1 ♂ 1 ♀, Albany District, Cape Province (Natal Mus.).

Sphaerophoria retrocurva Hull

Sphaerophoria retrocurva Hull, 1944, *Ann. Mag. nat. Hist.* (11) 11:58.

Male terminalia (fig. 8): Tergite 9 with cercal notch open. Surstylus in normal position, scarcely divided into lobes, with a thumb-like process near base of ventral margin and a thickened and moderately setose ridge near ventral margin on inner surface, the outer surface with sparse short hairs, the inner surface with fewer but slightly longer hairs. Sternite 9 with posterolateral angles produced well beyond base of superior lobe, each process with a single short seta near apex; posteroventral emargination about half as long as sternite. Superior lobe bent sharply dorsad at mid length, with a few small setae at posteroventral angle and with a slightly thickened and rugose semi-membranous appendage at apex. Aedeagal base almost straight in profile, the anterior half strongly depressed and almost twice as broad as posterior half, the latter with the lower surface flattened and the upper surface rounded. Distal portion of aedeagus with about basal $\frac{1}{3}$ sclerotized and strongly flared distally, the apical $\frac{2}{3}$ membranous and very greatly expanded.

Specimens examined: 2 ♂♂ (holotype and paratype), Mossel Bay, Cape Province (B.M. (N.H.)); 1 ♂, Little Berg Summits, Cathedral Peak Forestry Reserve, Drakensberg, Natal, 1 675–1 830 m (Natal Museum).

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